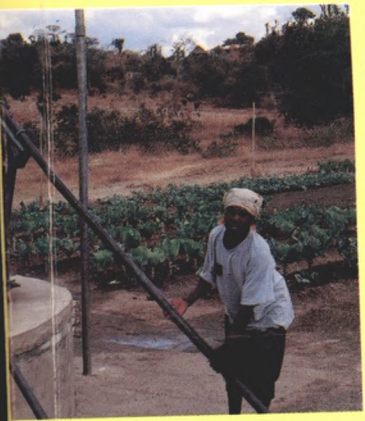
Smallholder Horticulture in ZIMBABWE



edited by
J.E. Jackson,
A.D. Turner
and
M.L. Matanda

First published in 1997 by
University of Zimbabwe Publications
P.O. Box MP 203
Mount Pleasant
Harare
Zimbabwe

ISBN 0–908307–61–6

Typeset by University of Zimbabwe Publications
Printed by Print Holdings (Pvt.) Ltd., Harare

MARKETING AND TRANSPORT

SOCIOLOGICAL AND GENDER ISSUES

INTERDISCIPLINARY DISCUSSION AND SUMMARY OF CONSTRAINTS ON SMALLHOLDER HORTICULTURE

10

THE COST AND ROLE OF TRANSPORT IN SMALLHOLDER HORTICULTURAL PRODUCTION: EXPERIENCES FROM THE MASHONALAND EAST FRUIT AND VEGETABLE PROJECT

[1]C. Karimanzira, [2]A. Jaure

[1]*Horticulture Promotion Council, 113 L. Takawira Street, P O Box 1241, Harare, Zimbabwe*

[2]*Mashonaland East Fruit and Vegetable Programme (ARDA), 3 McChlery Avenue South, P O Box CY 1420, Causeway, Harare.*

ABSTRACT

Smallholder horticultural production was important even prior to Zimbabwe's Independence and plays a significant role in the supply of fruit and vegetables to the major urban areas and mining settlements.

The EC sponsored Fruit and Vegetable Project in Mashonaland East Province of Zimbabwe, implemented by ARDA since 1987 has adopted the provision of reliable and affordable transport of horticultural produce as an intervention strategy to improve smallholder horticultural production and marketing. This study is focused mainly on the Mashonaland East Fruit and Vegetable Programme since this is one of the largest government funded smallholder horticultural development projects.

Although the smallholder horticultural producer is currently faced by several constraints with profound effects on both production and marketing of produce, the provision of a reliable and affordable transportation system for these farmers has led to a major improvement on both production, as evidenced by volume of produce delivered to the markets, and net returns to the farmers which have increased by as much as 30%.

The authors hope the findings of this study will form part of the overall effort by government and private initiatives towards horticultural development for both domestic and export markets. The provision of a reliable and relatively efficient transport system has a synergic effect on economic development by stimulating production and creation of employment in the agribusiness sector of Zimbabwe.

INTRODUCTION

Even before independence smallholder farmers in Zimbabwe played a very significant role in supply of fruit and vegetables mainly for the major urban areas. Smallholders, however, had limited involvement in the regional and international horticultural markets. Regional horticultural marketing has tended to be closely associated with the Zimbabwe-Botswana border areas around Ngwezi and Plumtree with Francistown being the main market for produce. Gaborone the capital city is well serviced by

South African supplies. Unfortunately this regional marketing function has tended to be the domain for the informal sector so there are no official records. Thus the major thrust for the Zimbabwean smallholder horticulture producer has focused on the domestic market (i.e. urban and mining settlements).

The smallholder horticultural producer currently faces several constraints with profound effects on both production and marketing of produce. The authors of this paper contend that addressing the issue of transportation for this category of producers has led to a major improvement of production, as evidenced by increased volumes of produce delivered to the markets; net returns to the farmers increased by as much as 30% (Hunting Technical Services, 1992).

The EC-sponsored Fruit and Vegetable Project in the Mashonaland East province of Zimbabwe, implemented by the Agricultural and Rural Development Authority (ARDA) since 1987 has adopted the provision of a reliable and affordable transport system for horticultural produce as an intervention strategy to improve smallholder horticultural production and marketing. This study is focused mainly on the Mashonaland East Fruit and Vegetable Programme since this is one of the largest of the government funded smallholder horticultural development projects.

The authors hope the findings of this study will form part of the overall effort by government and private initiatives towards horticultural development for both domestic and export markets.

OVERVIEW OF THE CURRENT RURAL TRANSPORT SYSTEM IN ZIMBABWE

The rural road network in Zimbabwe is characterised by all weather gravel roads under the Ministry of transport. These major roads would be first to be paved should funding become available. Thus they are commonly known as state roads. State roads tend to be paved where they link urban towns or lead to neighbouring states. Otherwise the majority of the secondary and feeder roads are exclusively under gravel. The District Development Fund (DDF) has the sole responsibility for construction and maintenance of the primary, secondary and feeder roads other than the state road network.

The rural transport system in Zimbabwe is directed towards movement of people and goods from the communal areas (CA's) to the urban centres. The main transport service takes the form of rural buses, lorries and vans. The rural bus services are generally designed to leave the communal areas in the early morning and return in the evening. It follows then that unless the service links two or more urban centres, business in urban areas by the communal people has to fit the existing bus service because the urban centres do not adequately cater for overnight accommodation at affordable rates for the rural folk.

Trucks and lorries tend to serve the communal or rural areas on a rather seasonal basis in response to the availability of produce, namely maize and cotton, although in some cases livestock movements call for such service as well. Vans are usually for delivery service to rural traders.

The current rural transport system in Zimbabwe is inadequate to meet the needs of smallholder horticultural producers. The major transport problems faced by smallholder horticultural producers typically include the following:

— inadequate, unsuitable and unreliable transport services,
— poor road networks resulting in farmers having to transport produce over long distances to the main roads,
— poor timing of passenger and goods transport services,
— poor road infrastructure with some areas impassable during and after the wet season,
— lack of transport operators based in rural areas. (NB nearly all operators are based in urban areas due to the historical development bias).

CONCEPTUAL FRAMEWORK

The overall goal to be achieved when the smallholder farmers engage in horticultural production for the market is to increase rural incomes thereby improving standards of living. As shown in Figure 1, horticultural marketing facilitates the transformation of products into income by providing a link between producers and consumers. In this regard horticultural marketing can be viewed as being both physical and economic, involving change of ownership through the exchange process. The physical part of the bridging process in horticultural marketing involves the 4 P's: Price, Promotion, Product and Place. Place utility also involves distribution which is largely dependent on the appropriate modes of transport, support infrastructure (e.g. warehouses, workshops, pre-cooling stations) and logistical arrangements which are all necessary to meet the urban consumers quality requirements for horticultural produce. Given that horticultural produce in its unprocessed form is highly perishable, the development of an efficient transport system is a pre-requisite to effectively meeting urban consumer demand and so improving the standard of living of the smallholder.

The purpose of operating an efficient transport system for smallholder horticultural marketing is timely delivery of commodities to the market and inputs to the producer. The underlying assumption in this paper is that there already exists the critical mass of horticultural produce to ensure the viability of the transport system. This critical mass exists because Mutoko in which the programme under discussion is centred has long been a major supplier of vegetables to Harare, partly because of its relatively warm and frost-free winters. A poor transport system results in high produce loss through rotting, reduced product shelf life and lower returns to the farmer.

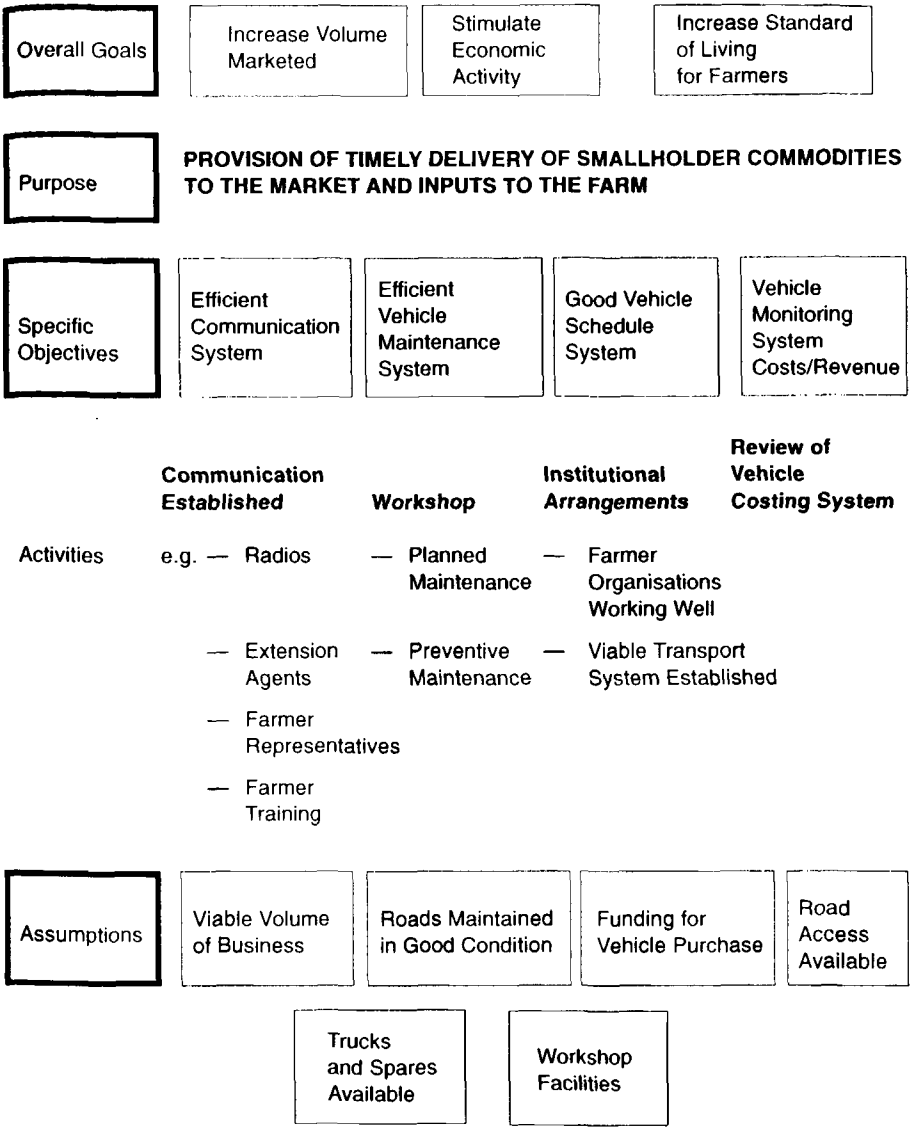
A good smallholder horticultural transport system carries out the following functions effectively:-

(a) communication;
(b) vehicle maintenance;
(c) scheduling appropriate to the nature of the produce to be delivered; and
(d) effective vehicle monitoring.

MASHONALAND EAST FRUIT AND VEGETABLE PROGRAMME TRANSPORT SYSTEM

The Mashonaland East Fruit and Vegetable Programme (Mash. East Programme) is currently being implemented by the Agricultural and Rural Development Authority (ARDA) funded by the European Economic Community (EEC). Part of the project

Fig. 1: Conceptual framework for an efficient smallholder rural transport system



horticultural produce grown in Mutoko and Uzumba communal areas. The project was launched in 1987, initially with three 8-tonne lorries. Currently the project operates seven 8-tonne trailers in Uzumba and Mutoko. The programme moves 5000 tonnes of fruits and vegetables annually. The ARDA survey of 1988 estimates that 61% of the smallholder farmers in Mutoko transport their horticultural produce to the main Harare Market (Mbare Musika) using lorries, 33% rely on bus transport while only 6% use private vans. Nearly 40% of those using trucks depend on the programmes' trucks i.e. these transport the produce for 24% of the producers.

constitution which contains liability and powers of attorney clauses. Thus the associations can sue or be sued in their own right.

METHOD OF TRANSPORT ROUTE ALLOCATION

The distribution of the smallholder producers and members of the associations is not even within the districts and their production fluctuates seasonally. Currently membership stands at 4000 and 2500 for Mutoko and Uzumba respectively. The peak mango periods are December to January and for vegetables the marketing periods are from May to June and August to October. Total horticultural production in Mutoko and Uzumba is estimated at 20 000 tonnes. Thus seven lorries with 8 tonne trailers each can hardly cope with such volumes of produce to be transported. The closure of Mbare Musika producer section from 10.00 am to 4.00 am the next day presents further logistical problems as the lorries cannot operate on a 24 hour basis. This means produce is delivered once every two days for a given truck. The long turn around time for the lorries to complete a given route has significant adverse effects on the quality of fresh produce delivered to Harare especially during the peak periods when the trucks cannot clear all the produce harvested for the market.

The ward representatives monitor the changes in the volume of produce to be transported from their wards and pass this information to the managing committee. The starting points for produce collection, frequency of collection per week and the length of the collection loops are constantly reviewed in the light of latest information available to the management committee from the various ward representatives so as to give a fair service to all association members. Typical routes are shown in Figure 2.

MONITORING AND EVALUATION SYSTEM

To help the association in the collection of transport charges levied against each farmer the following proposed procedure has been drawn up.

1. The trucks will leave for various destinations to collect the produce and immediately leave for Harare Mbare Musika.
2. There will be a member of the management committee of the producers association or an employee accompanying each truck to Mbare Musika.
3. As the collection of produce from farmers is done the management committee member will issue each farmer (whose produce has been collected) with a Produce Receipt. The original copy is handed over to the farmer and the duplicate kept as a fast copy.
4. After the producer has sold produce at the Musika the member of the management committee will collect transport charges from each farmer in accordance with the quantity transported.
5. Soon after a farmer has paid, the amount paid will be entered on the "Cash Receipt" portion of the original copy of the Produce Receipt which a farmer will have been issued with at the collection point.
6. The same amount paid will be entered on the first copy of the Produce Receipt on the "Cash Receipt" portion immediately.

Prior to the advent of the Mash East Programme, private business men provided lorries with services confined to areas with a high density of producers who were accessible by good feeder roads. At best this transport system could be described as being erratic with no institutional arrangements entered into between private transporters and producers. Often smallholder producers were abandoned in favour of the more lucrative grain and cotton transport during the peak horticultural season (May to September). In addition the smallholder transport system faced the same problems identified in this paper. For example, Table 1 indicates the limited extent and quality of the road network in the project area.

Table 1: Motorable road network in Mutoko

Tarred Roads km	State gravel roads	DDF gravel roads	Total km	Area km^2	Density m/km^2
65	241	206	594	6 103	97

Source: DDF, MRRT, 1987

Most of the roads in Mutoko are at least 4 metres wide with side and mitre drains, a very few culverts especially on sections passing through vlei areas, drift over stream crossings and generally rough (corrugated) and sandy surfaces with patches of good gravel. Gullies often develop during and immediately after the wet season. Road maintenance is difficult during the wet season hence small bad sections often deteriorate giving serious problems.

Most of the smallholder horticultural farmers in the project area market their produce in Harare and often have to travel to and from the city by bus. It is usually difficult to synchronise the bus time-table with truck produce collection to enable the smallholder farmer to catch the bus to the market after loading produce onto the truck. In some areas the buses start off very early in the morning, at 0400 hours, at which time the produce trucks would not have commenced loading. The situation could be alleviated if the bus operators adopted an hourly service round the clock, but the low passenger traffic in some rural areas makes it difficult to increase the frequency of trips without affecting the transport viability.

SMALLHOLDER INSTITUTIONAL DEVELOPMENT

Two horticultural producers associations have been formed, one for Mutoko and one for Uzumba. The associations are responsible for co-ordinating the members' activities and the management of the transport fleet. The organisational structure of these associations includes a management committee with a Chairman, Secretary, Treasurer and five committee members. The managing committee meets once a month to review and formulate policy issues, outline work programmes and determine transport routes. The Chairman, Secretary and Treasurer also meet once every week to authorize vouchers and sign cheques. The managing committee operates in very close liaisons with the ARDA project management team which assumes an advisory role and provides the necessary training for the committee members. The associations each have a

Fig. 2a: A typical transport route and road network (Mutoko area)

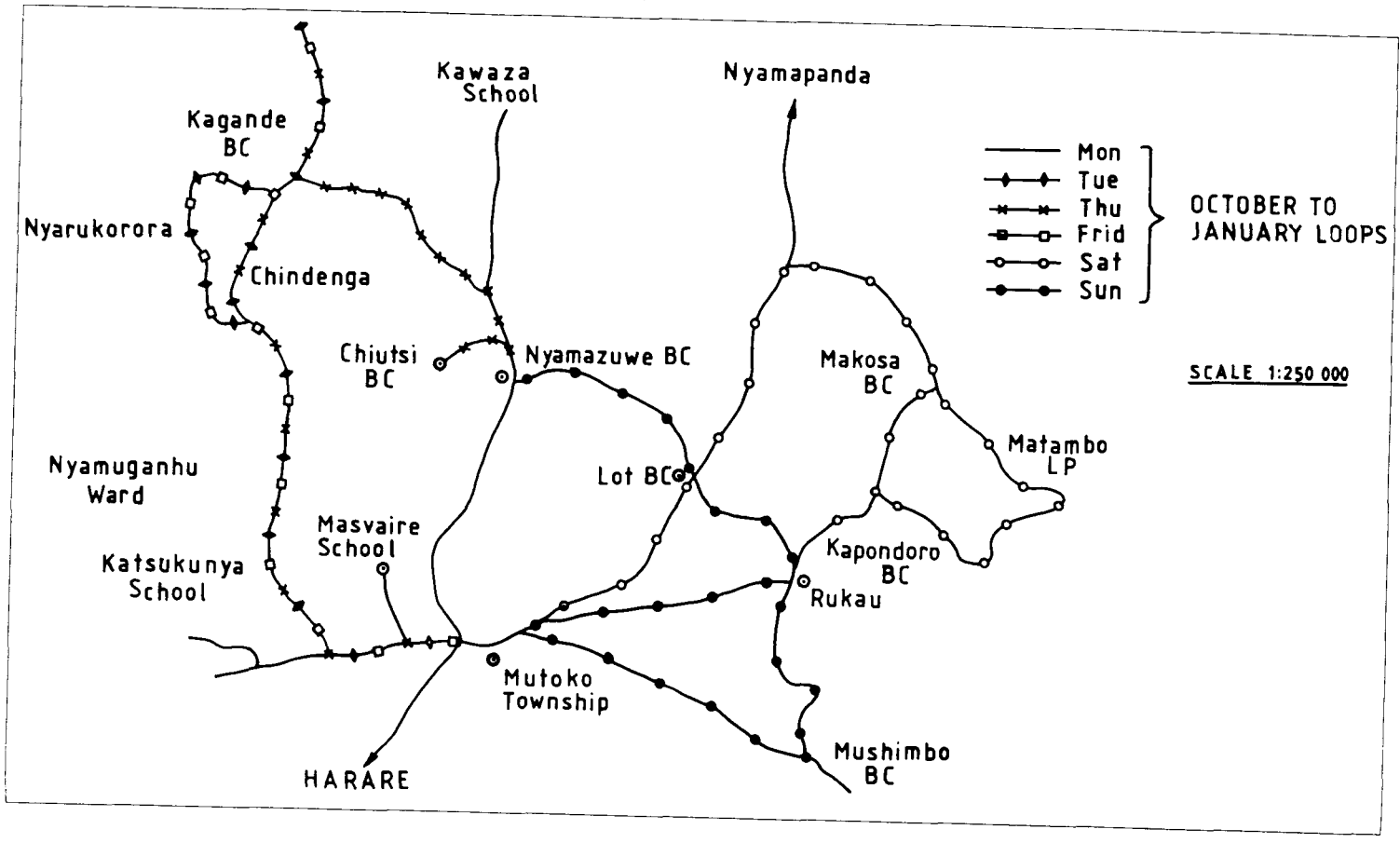
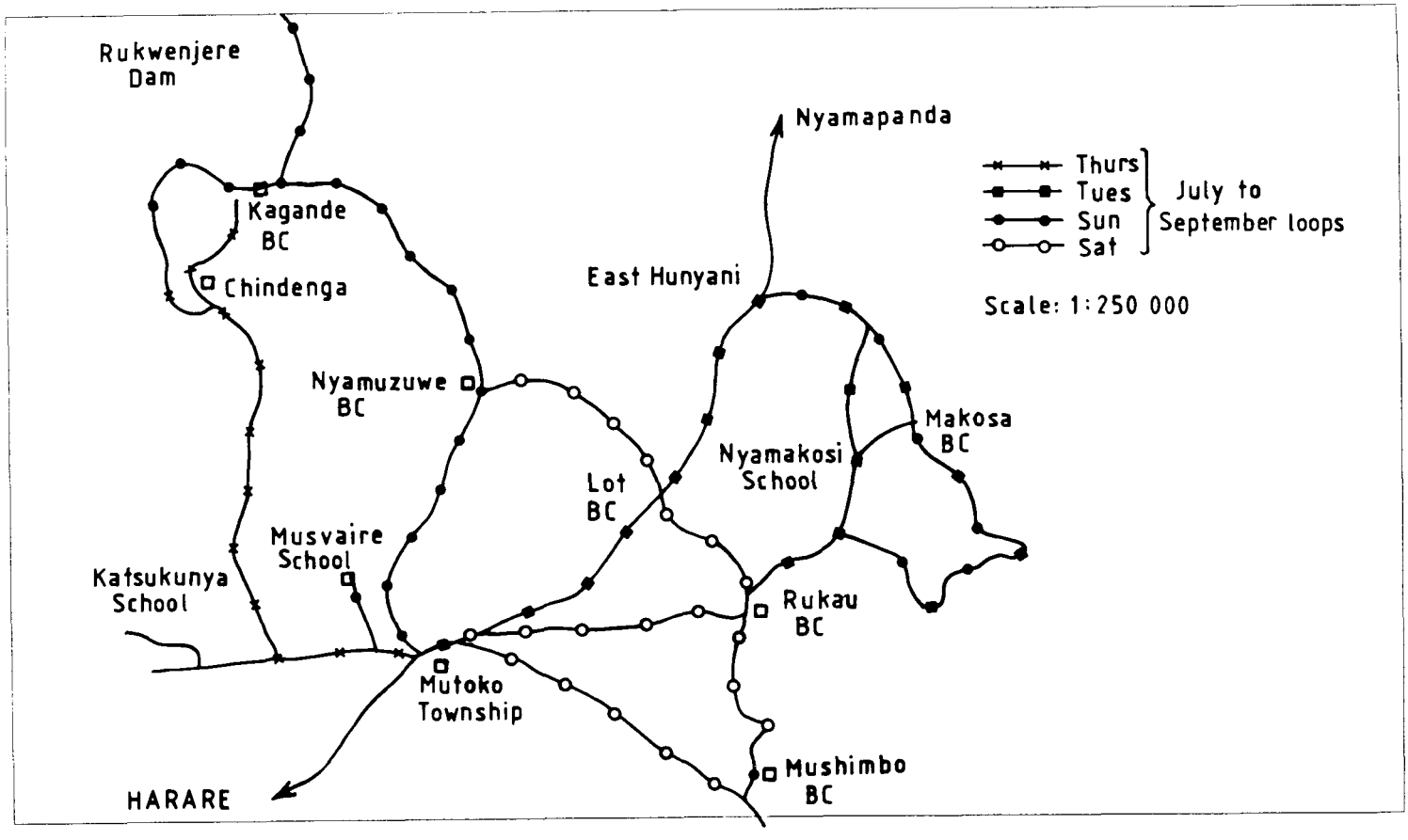


Fig. 2b: A typical transport route (Mutoko)



tie the amount entered on the fast copy of the Produce Receipt (Cash Receipt portion) with the actual amount collected. The two must always agree.

8. The amount so collected will on return to the station be handed-over to the bookkeeper who will issue a receipt in triplicate. The original copy will be posted on the last Produce Receipt in the Produce Receipt Book, the duplicate is attached to the copy of the relevant bank deposit slip.
9. The bookkeeper will enter in the Cash Book.
10. The monies so collected will be banked by the bookkeeper daily and also immediately recorded in the Cash Book.
11. The travelling and subsistence for the members of the management committee will under normal circumstances be paid to them from the money collected before banking. The procedure to be followed will be:-
    Step 1 Receipt the money as in 8 above.
    Step 2 Prepare a Travelling and Subsistence claim and pay the member in cash by deducting from the collections.
    Step 3 Credit the Cash Book with the amount paid.
12. All other payment from this account will be accompanied by a cheque requisition and any other supporting documents and preferably be paid by cheque.
13. At the end of the each week, fortnight or month the Cash Book, the Journal Book and the Petty Cash Book (if any) will be posted to the Ledger and Trial Balance extracted ready for the preparation of Financial Statements.

TRANSPORT OPERATING SYSTEM

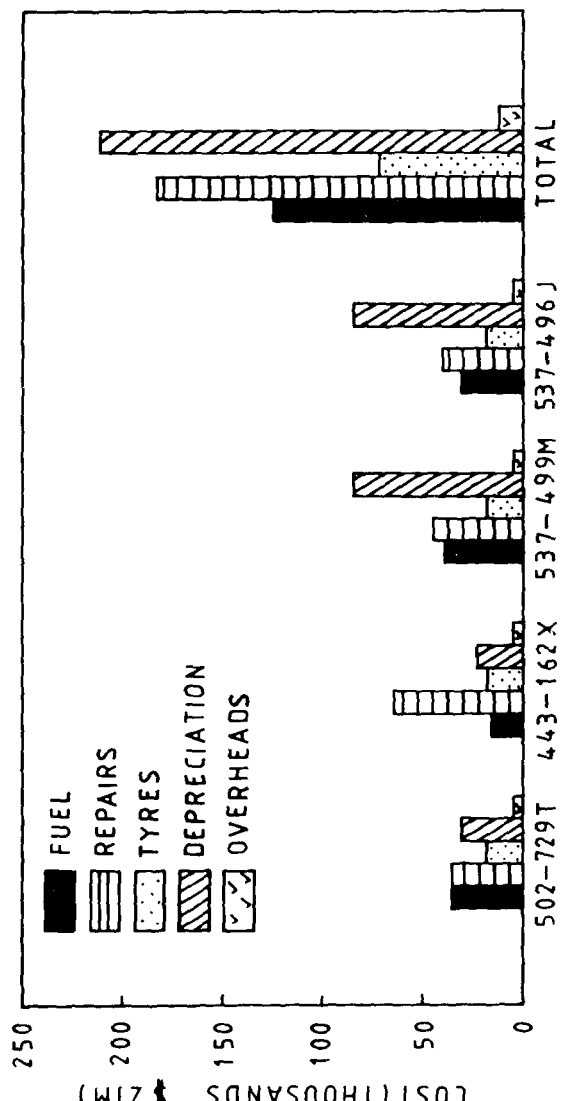
In any given rural transport system, accurate record keeping is a pre-requisite for obtaining realistic transport costs which will also facilitate effective decision-making. Data for the Mash East Programme used in this paper is based on a sample from the seven 8-tonne trucks mentioned earlier on. Three trucks are Leyland Cleysdale Model, one a Nissan UD and three Renault Models.

The main truck operating costs are:

- fuel costs
- repairs and maintenance
- staff salaries
- depreciation
- fixed administrative costs (Associations)
- License
- insurance

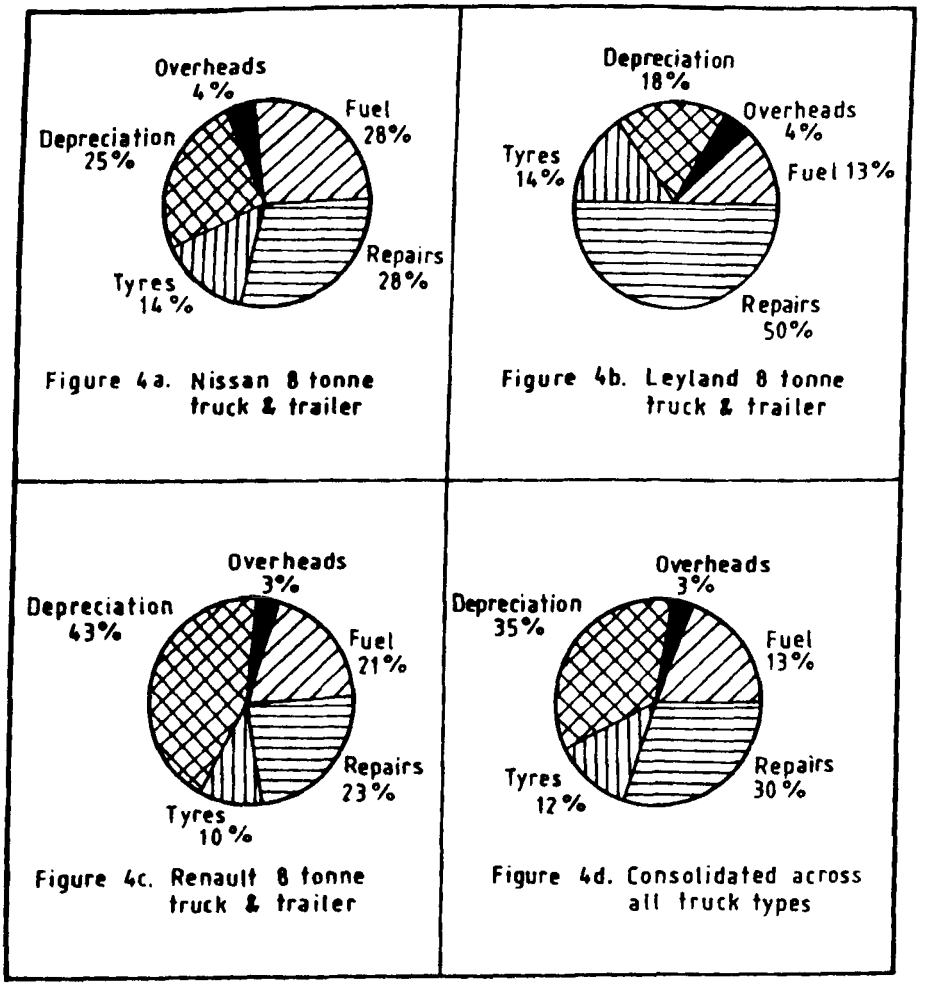
A summary of the operating costs are in Figure 3 for the trucks under review. Figure 4 represents the same information in consolidated form.

A close examination of Figure 4 reveals that repairs and fuel account for 50% of operating costs. The findings on the performance of the Mash East transport fleet seem to tie in very well with other similar studies in the transport sector. Figure 5 shows the pie-graph percentage distribution of typical fleet operational costs. The overheads components seem to reflect fleet size, office and workshop facilities given the current high Zimbabwe Electricity Supply Authority (ZESA) and other service charges. The repairs component is also very significant



ig. 3: Mashonaland East Project: Vehicle Costs (actual amounts)

Fig. 4: Mashonaland East Project: Vehicles Costs (relative cost of different components)



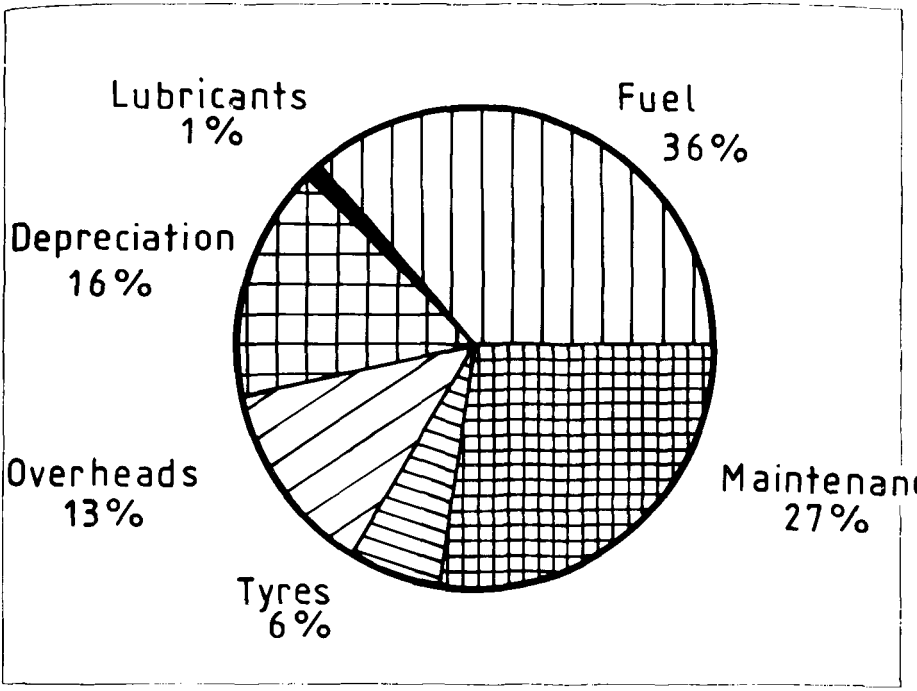
Depreciation on the selected trucks is as shown in Figure 3. The recent acquisitions i.e. Nissan and Renault have come at a more expensive level hence the rather high figure for the depreciation. The impact of devaluation is a major cause for concern if replacement of these vehicles is to be achieved.

The overall performance of the trucks in question is indicated in Table 2.

Table 2: Overall Performance of the Mashonaland East Trucks in Sample

Truck	Distance travelled	Total Diesel (l)	Performance km/litre
Nissan	9 030	3 934	2,29
Leyland	215 724	91 408,4	

Fig. 5: Percentage Distribution of Typical Fleet Operational Costs



Source: *Sunday Mail*, 14–8–1994

RECOMMENDATIONS FOR DEVELOPMENT OF AN EFFICIENT HORTICULTURAL TRANSPORT SYSTEM

In this section the conceptual framework presented in the earlier section of this paper is re-visited. The main assumptions are assumed to hold. The result to be achieved are still the same i.e.

a) Efficient communications system

For any communication system to be viable under smallholder producer conditions, the following must be considered.

- the scattered nature of the rural settlement pattern
- seasonality and fluctuations in production
- low road density
- weak telephone network
- scheduling

The recommendation here is that an efficient communication system is achievable provided any of the following is used;

- use of extension agents even if it means paying for the extra mileage.
- use of farmer representatives on bicycles [illegible]

— introduction of a radio network. Here the cost and coverage for such a system needs to be considered. It is important for the farmers to know when the vehicles are coming. In countries such as Swaziland (NAMBOARD) and Tanzania, the national radio broadcasting services are made use of in disseminating market information. However, such information would still remain inadequate for the Zimbabwean case.

b) Efficient system or vehicle maintenance

To achieve this, care must be taken to impart knowledge and skills necessary for preventive maintenance to be effected. Proper and well equipped workshops need to be established at suitable growth points with adequate infrastructure.

c) Good vehicle scheduling system

The Mash East Programme has demonstrated that it is feasible, through producer associations, to achieve this standard. We propose that a good vehicle scheduling system must be in place otherwise the critical mass of produce may not be delivered on time.

d) Provision of basic infrastructure

It is feasible that the established producer associations could very well engage in out-grower schemes with established large scale growers. Here the argument is that, by pooling resources, economies of scale in the provision of grading, pre-cooling and cold room facilities can be maintained. Additional investment will have to be made in the form of handling facilities and the acquisition of refrigerated trucks for transportation of high quality produce for export.

CONCLUSION

This paper has highlighted the salient features underlying the operation of a smallholder horticultural transport system given the existing constraints. While provision of an efficient transport system is not the only necessary condition to be met, it does however, create multiplier effects on the volume of produce delivered to the market. This in turn will mean an increase in income accruing to the smallholder producer. It is still feasible to bring the efforts of such experienced smallholder producers towards production for the export market. Policy makers should thus strive to create an enabling environment at the macro-economic, legal and institutional level so as to exploit the potential of smallholder horticultural producers to participate in the market. The provision of a dynamic financing sector which includes the banking sector as well as venture capital is a pre-requisite for these proposals to be achievable. Thus, it is still viable to provide "seed" money in the form of a revolving fund from which smallholder associations can obtain finance at concessionary rates with which to fund the system endowed with associated structures as discussed in this paper.

REFERENCES

Hunting Technical Services, 1992

Sunday Mail, 14.4.1994